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Neuropsychiatry and Intellectual Disabilities

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Why Is IDD So Complicated?

- Dueling heterogeneities
- MMID- gene-environment interactions
- SPID- Higher rates of neurodevelopmental brain disorders (CP, Sz disorders 35-50%)
- The brain as a rain forest not a watch nor a computer
- Relationship to challenging behaviors, temperament and psychiatric disorders

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Functional Versus Organic: My Head Hurts Thinking About It

- The dichotomy is an old one
- Descartes-mind-body distinctions
- Mind-Brain- either/or models
- “Lesionology”, anatomical determinism, evolution of neuropsychology
- Central coherence, hierarchical organization, ecosystem models

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Neurodevelopmental Models

- Timing of insult during brain development
- Anatomical versus functional findings
- Role of genes, environmental forces - two hit theories for schizophrenia
- Brain disorders and psychiatric disorders - schizophrenia
- Adverse effects of psychiatric disorders on brain function

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Behavioral Phenotypes

- Probability that a certain collection of behaviors are associated with a specific genotype
- Gene—environmental interactions and epigenetics
- Segue to molecular genetics, regulation
- Relationship to mental disorders – polygenic, multiple brain networks , syndromes

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Syndromes with Behavioral Phenotypes

- FRA – X27.3, trinucleotide repeats, mglu5
- Velocardiofacial syndrome- 22q deletion
- Prader-Willi – Angelman's Chr 15q11.3-13 dele, genomic imprinting
- Rett's Syndrome- X-linked dominant
- Lesch-Nyhan syndrome, X-linked recessive Lyonization, relationship to SIB
- Williams Syndrome- 7q, social relatedness

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Subtypes of Brain Disorders

- Dementias - cortical versus subcortical
- Gray matter diseases – early onset myoclonus, visual impairments, localization, regionalization
- White matter disorders - mental and cognitive slowing, rigidity, spasticity, hyper-reflexia, late onset seizures
- Metabolic disorders, onset, rate of decline; mitochondrial dysfunction

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Specific Disorders

- Epilepsy, subtype analysis, age of onset, duration, AED responsiveness
- Basal ganglia disorders, Parkinson's + syndrome, caudate degeneration
- CVA, cortical v subcortical disorders, course
- Demyelinating disorders – disconnection
- Traumatic brain injury

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Differential Diagnosis of Neuropsychiatric Disorders

- Atypical presentation of psychiatric disorders
- Age of onset -
- Course of symptoms, temporal profile
- Associated findings - the company that it keeps
- Failure to respond to effective treatments

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Hallucinations

- Cerebral dysfunction or sensory impairment
- Modality –
- Timing, triggers, response to treatment
- Focal seizures, stereotyped, brief, location
- SDAT v. Lewy Body Dementia (LBD) - sensitivity to antipsychotics
- Delirium, anticholinergic load

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Delusions

- Bizarreness, complexity, associations
- Relationship to the course, areas of cerebral involvement, lateralization
- Integrity of cognitive functions
- Content specific delusions, reduplicative paramnesias
- Nondominant hemisphere, prefrontal deficits

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Thought Disorder

- Relationship to aphasia. Semantic paraphasia, comprehension deficits
- Illogical- self monitoring failures, egocentric
- Loosening of associations, loss of normal connections between thoughts
- Idiosyncratic, overly-intrusive v. reduced flexibility, constricted thought

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Mood

- Distinguished from catastrophic reactions, constricted affect (dysprosodias), disinhibition, incontinence, exaggeration
- Apathy v depression; akinesia, bradykinesia, psychomotor slowing
- Lateralization, regionalization of mood states
- Depression in Parkinson's, CVA, dementias

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Impulse Control

- Changes from baseline
- Associated symptoms, developmental course
- Affective instability, repetitive nature of behaviors, perseveration, antisocial, motor disinhibition and frontal lobe disorders
- Temporo-limbic disorder, rage, impulsivity, wider range of psychiatric symptoms

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Obesity - “When do we eat?”

- BMI -overweight 25 kg/m; obesity: 30
- 65% of adults are overweight, rates have doubled since the 1960’s
- Racial, SES, ethnic differences - length of time in the US, “fast foods”- super-sizing America
- The fastest growing group - those BMI > 50
- Special problem posed by childhood obesity

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Everyone is Overweight

- Early environmental experiences shape the regulation of food intake and activity level
- Childhood obesity - genes involved in regulating hunger/satiety, food preferences (hi-cal/lo-cal; fat; sweet tooth, BUT
- Eating when hungry or when food is present
- Food as reinforcement- hunger cues v. stress

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What is PTSD?

- Chronic - a kidnapped stress response system.
- Descriptive Dx - multi-factorial syndrome that is relatively resistant to most treatment programs- why is relapse so common?
- Risk factors - Acute stress reaction, dissociation, autonomic dysregulation, neuroendocrine changes, age and repeated events.

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Interesting Things About PTSD

- Acute stress disorder, dissociation, and co-existing anxiety/depression increase risk.
- Prevalence: females >>>males
- Age, repeated trauma, tendency towards avoidance patterns of behavior increase the risk, SUD, traumatic brain injury
- 10-20% develop PTSD; 18% recovery (5 yrs)

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Clues:
This Diagnosis Makes No Sense

- Complex neurodevelopmental disorders that have distinct patterns of onset and clinical course
- Most are final common pathways
- Subtypes of mental disorders based on genetic variations- heterogeneous disorders, dx based on description, multiple pathways to get there
- “I’m not any better”- change drugs every visit

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Clues: Treatment "Failures"

- Atypical symptoms and treatment response, sensitivity to side effects, value of serum drug levels, avoid polypharmacy
- Effects on severity - schizophrenia and TBI
- Increase rates of treatment resistance- kindling
- Deterioration during treatment, degenerative disorders, emergent seizures, delirium,

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Conclusion

- It is more useful to describe the problem rather than come in with a diagnosis
- If you hear hooves, they are probably from horses not zebras
- People need to listen to each other- problem solve
- No magic bullets, more isn't better, either/or thinking gets you nowhere